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SECOND SUPPLEMENTAL PRELIMINARY AMENDMENT

#13 SA
Pre Amdt C
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Title: HIGH DATA RATE SPREAD SPECTRUM TRANSCEIVER AND ASSOCIATED METHODS

Commissioner for Patents
Washington, D.C. 20231

Prior to initial review, please amend the claims as follows:

IN THE CLAIMS

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123. (Amended) A method of generating an rf signal for transmitting binary information in a packet format including a header field followed by a data field, comprising the steps of:

spread spectrum encoding a sequence of first data symbols from said binary information within said header field by combining said first data symbols with a spreading sequence generated at a predetermined chip rate;

encoding a sequence of N-bit second data symbols, where N is greater than 1, from said binary information within said data field by generating for each of said N-bit second data symbols one of a set of 2^N chip sequences generated at the same chip rate as said spreading sequence; and

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applying the spread-spectrum encoded symbols of said header field and the selected chip sequences of said data field to the I and Q inputs of a phase shift modulator to produce said rf signal.

124. (Amended) The method of claim 123 wherein each said chip sequence is generated by selecting an initial chip sequence in accordance with a first data segment of an N-bit second data symbol and differentially phase encoding said initial chip sequence in accordance with a second data segment of the same N-bit second data symbol.

125. (Amended) A method of generating an rf signal for transmitting binary information in a packet format including a header field followed by a data field, comprising the steps of:

spread spectrum encoding a sequence of first data symbols from said binary information within said header field by combining said first data symbols with a spreading sequence;

encoding a sequence of N-bit second data symbols, where N is greater than 1, from said binary information within said data field by generating for each of said N-bit second data symbols one of a set of 2^N chip sequences, each of said chip sequences being differentially phase encoded;

applying a reference phase based on encoding of the last of said first data symbols to the differential encoding of the first selected chip sequence; and

inputting said encoded symbols of said header field and said differentially encoded chip sequences of said data field to the I and Q inputs of a phase shift modulator to produce said rf signal.

126. (Amended) The method of claim 125 wherein each said chip sequence is generated by selecting an initial chip sequence in accordance with a first data segment of an N-bit second data symbol and differentially phase encoding said initial chip sequence in accordance with a second data segment of the same N-bit second data symbol.

132. (New) A method of encoding binary data for transmission in packet format along with information encoded at a predetermined spread spectrum chip rate, said method comprising the steps of:

grouping said binary data into N-bit symbols;

applying a K-bit segment of each N-bit symbol to a chip sequence generator to select one of 2^K chip sequences, wherein each chip sequence is M chips in length and is a composite of an M-bit basic sequence and an M-bit modification sequence;

rotating the phase of the selected chip sequence in accordance with an N-K bit segment of the same N-bit symbol that selected said chip sequence; and

transmitting each phase-rotated, selected chip sequence at said predetermined chip rate.

133. (New) A method of encoding binary data for transmission in packet format along with information encoded at a predetermined spread spectrum chip rate, said method comprising the steps of:

grouping said binary data into N-bit symbols;

applying a K-bit segment of each N-bit symbol to a chip sequence generator to select one of 2^K chip sequences, wherein each chip sequence is M chips in length;

combining the selected basic chip sequence with a fixed, M-chip modification sequence to produce a selected M-chip composite chip sequence;

rotating the phase of the selected M-chip composite chip sequence in accordance with an N-K bit segment of the same N-bit symbol that selected said basic chip sequence; and

transmitting each phase rotated, selected composite chip sequence at said predetermined chip rate.